

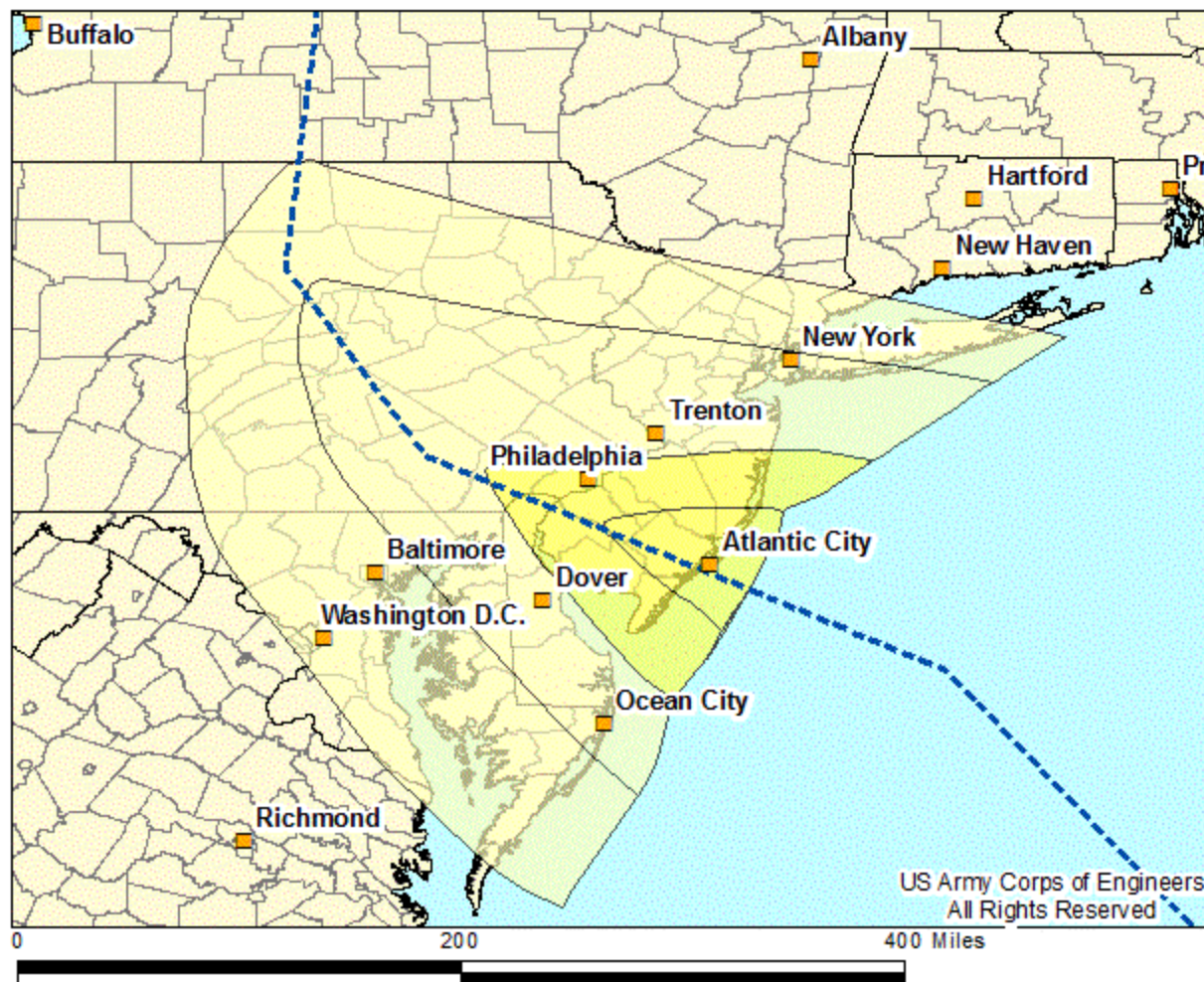


US Army Corps
of Engineers

Hurricane Sandy Projected Damage Areas

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Post Landfall Projected Damage Areas

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

- Forecast Track
- Projected Damage Areas**
- CAT 0-type damage
 - CAT 1-type damage
 - CAT 2-type damage
 - CAT 3-type damage
 - CAT 4-type damage
 - CAT 5-type damage

Information provided on this page displays a projected or actual Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast and extrapolated by LRL staff to represent a landfall condition that has either occurred or may occur in the near future.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Projected Damage Areas

Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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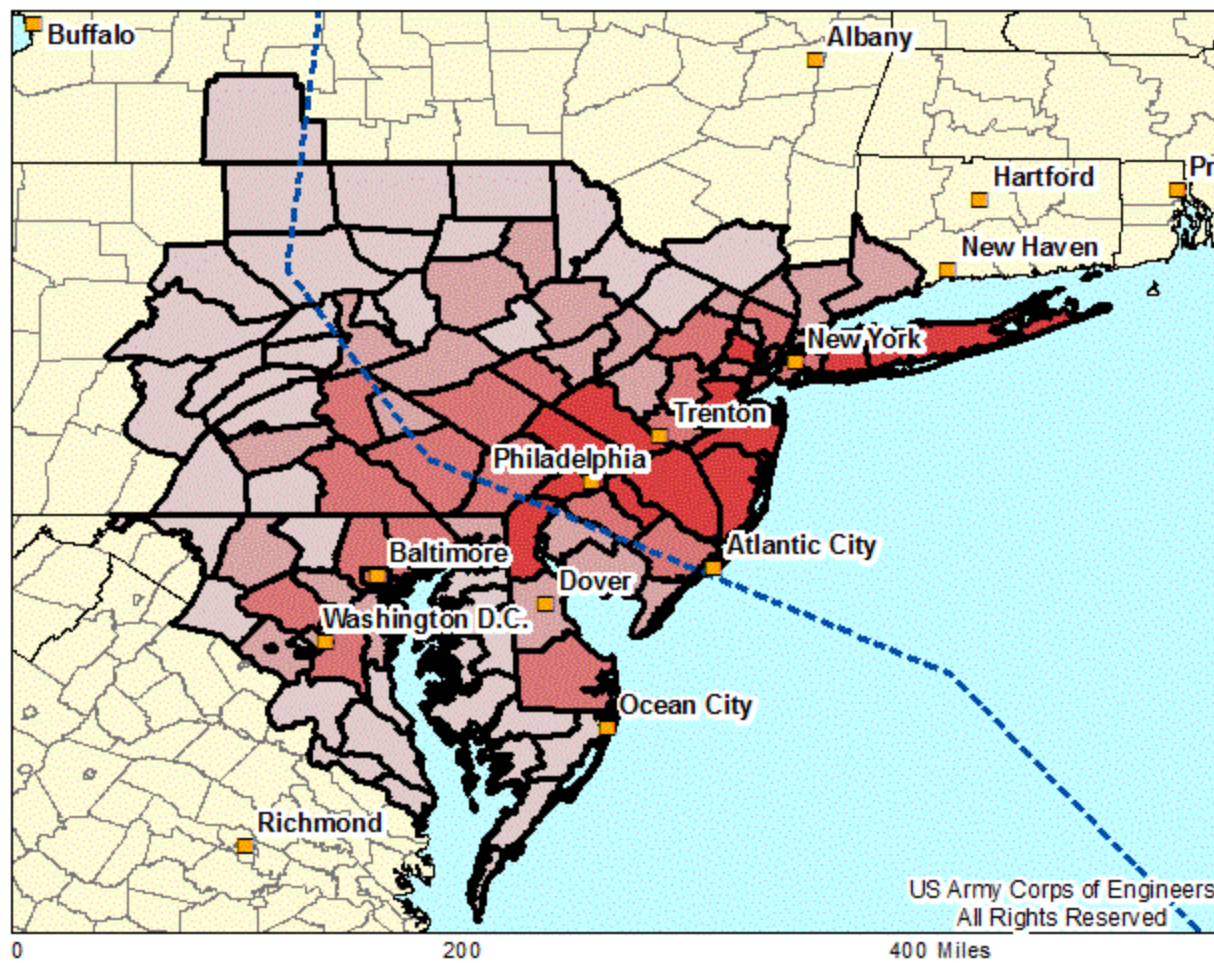


US Army Corps
of Engineers

Hurricane Sandy Debris Model

Landfall Expected In About 38 Hours

**For Planning
Purposes Only!**



Post Landfall Debris Model Results

New Jersey - 8,141,000 Yards
 Pennsylvania - 6,482,000 Yards
 Maryland - 3,020,000 Yards
 New York - 2,875,000 Yards
 Delaware - 944,000 Yards
 Virginia - 302,000 Yards
 District of Columbia - 233,000 Yards
 Connecticut - 128,000 Yards

*Model results per County on following
page*

This model is based on a
 Category 1 storm making landfall
 in coastal New Jersey.

Forecast Track

Debris

- < 100,000 cubic yards
- 100,000 - 249,999 cubic yards
- 250,000 - 499,999 cubic yards
- 500,000 - 999,999 cubic yards
- >1,000,000 cubic yards

US Army Corps of Engineers
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Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
 or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Debris Model

Generated By:
 P.Keown, LRL 1300 EDT 10/28/2012

Sources:
 HURREVAC
 LRL-DEBRIS

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US Army Corps
of Engineers

Hurricane Sandy Debris Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**

State	Yards per State	County	Yards per County
Connecticut		Fairfield County	128,000
Connecticut	128,000		
Delaware		Kent County	167,000
		New Castle County	523,000
		Sussex County	254,000
Delaware	944,000		
District of Columbia		District of Columbia	233,000
District of Columbia	233,000		
Maryland		Anne Arundel County	243,000
		Baltimore County	482,000
		Baltimore city	368,000
		Calvert County	59,000
		Caroline County	31,000
		Carroll County	64,000
		Cecil County	111,000
		Charles County	51,000
		Dorchester County	25,000
		Frederick County	113,000
		Harford County	274,000
		Howard County	172,000
		Kent County	21,000
		Montgomery County	326,000
		Prince George's County	351,000
		Queen Anne's County	35,000
		Somerset County	15,000
		St. Mary's County	82,000
		Talbot County	27,000
		Washington County	40,000

State	Yards per State	County	Yards per County
Maryland		Wicomico County	61,000
(continued)		Worcester County	69,000
Maryland	3,020,000		
New Jersey		Atlantic County	365,000
		Bergen County	416,000
		Burlington County	660,000
		Camden County	880,000
		Cape May County	161,000
		Cumberland County	155,000
		Essex County	564,000
		Gloucester County	383,000
		Hudson County	380,000
		Hunterdon County	140,000
		Mercer County	388,000
		Middlesex County	666,000
		Monmouth County	626,000
		Morris County	294,000
		Ocean County	801,000
		Passaic County	141,000
		Salem County	104,000
		Somerset County	357,000
		Sussex County	80,000
		Union County	466,000
		Warren County	114,000
New Jersey	8,141,000		
New York		Bronx County	161,000
		Kings County	301,000

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

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Hurricane Sandy Debris Model

Generated By:
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Sources:
HURREVAC
LRL-DEBRIS

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US Army Corps
of Engineers

Hurricane Sandy Debris Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**

State	Yards per State	County	Yards per County
New York		Nassau County	634,000
(continued)		New York County	309,000
		Orange County	24,000
		Queens County	301,000
		Richmond County	353,000
		Rockland County	113,000
		Steuben County	< 1,000
		Suffolk County	503,000
		Westchester County	176,000
New York	2,875,000		
Pennsylvania		Adams County	43,000
		Berks County	408,000
		Bradford County	28,000
		Bucks County	543,000
		Carbon County	67,000
		Centre County	48,000
		Chester County	436,000
		Clinton County	25,000
		Columbia County	71,000
		Cumberland County	158,000
		Dauphin County	251,000
		Delaware County	552,000
		Franklin County	72,000
		Huntingdon County	3,000
		Juniata County	15,000
		Lackawanna County	101,000
		Lancaster County	341,000
		Lebanon County	128,000
		Lehigh County	315,000
		Luzerne County	194,000

State	Yards per State	County	Yards per County
Pennsylvania		Lycoming County	84,000
(continued)		Mifflin County	24,000
		Monroe County	102,000
		Montgomery County	597,000
		Montour County	19,000
		Northampton County	192,000
		Northumberland County	102,000
		Perry County	31,000
		Philadelphia County	921,000
		Pike County	31,000
		Schuylkill County	141,000
		Snyder County	35,000
		Sullivan County	6,000
		Susquehanna County	3,000
		Tioga County	25,000
		Union County	35,000
		Wayne County	15,000
		Wyoming County	16,000
		York County	304,000
Pennsylvania	6,482,000		
Virginia		Accomack County	22,000
		Alexandria city	54,000
		Arlington County	99,000
		Fairfax County	109,000
		Falls Church city	11,000
		Loudoun County	< 1,000
		Northampton County	3,000
		Northumberland County	4,000

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

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or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

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Hurricane Sandy Debris Model

Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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Hurricane Sandy Debris Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**

[illegible]

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

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Hurricane Sandy Debris Model

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Sources:

HURREVAC
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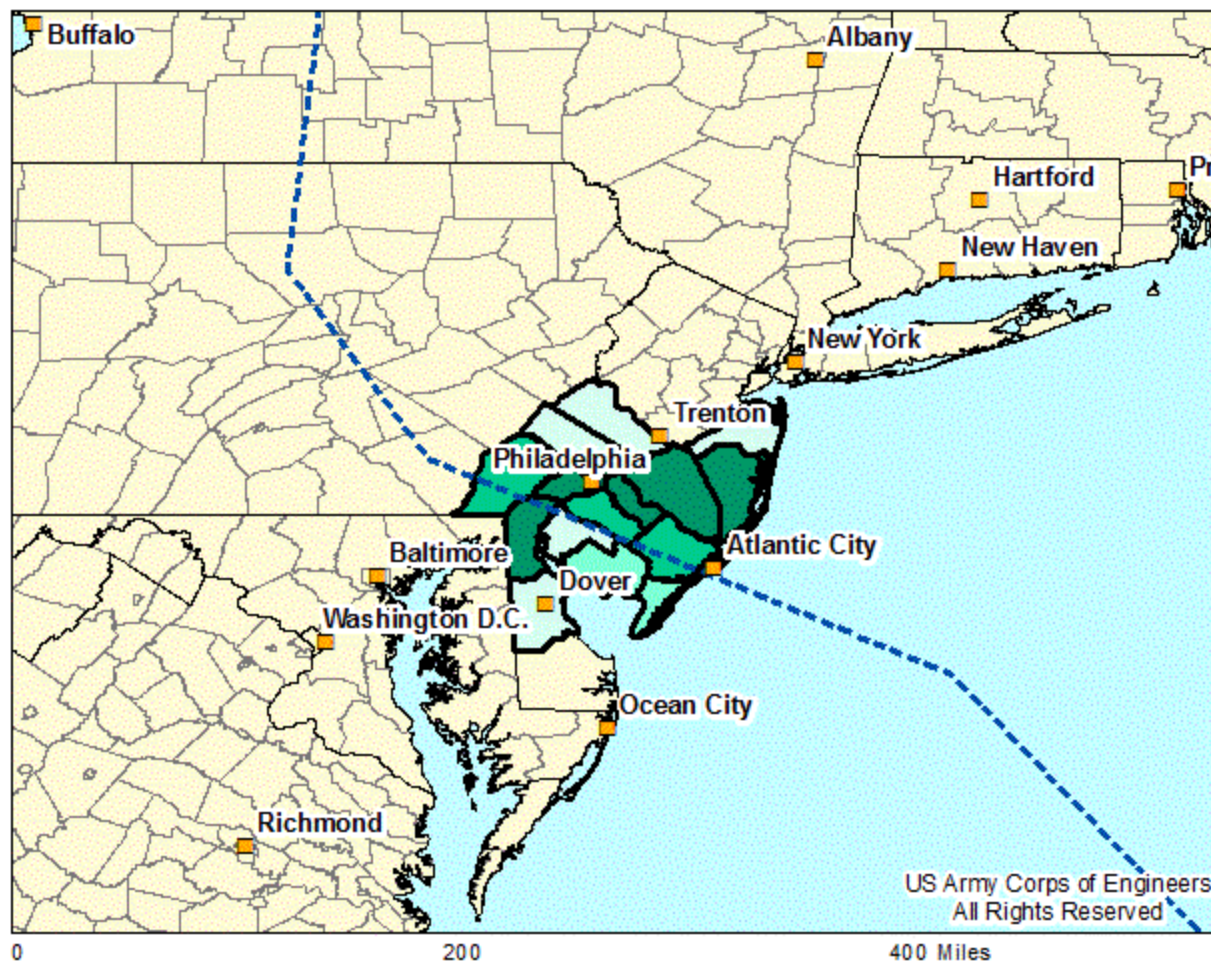


US Army Corps
of Engineers

Hurricane Sandy Commodities Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Post Landfall Water Model Results

Day One / Day Two / Day Three

NJ – 28/56/133 Truckloads

PA – 22/44/89 Truckloads

DE – 6/12/24 Truckloads

*Model results per County on
following page*

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

Forecast Track

Commodities

- < 5 Trucks Each
- 5 - 10 Trucks Each
- 11 - 20 Trucks Each
- 21 - 40 Trucks Each
- > 40 Trucks Each

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Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. The amount of commodities forecasted is based on Mission Guide Book requirements and SME input. The graphic represents daily needs with a ramp-up in the distribution system – three days for Points of Distribution (PODs) to be fully in place and operational. Volume shown is for each commodity – water and ice. Commodity need may be supplied by multiple agencies and/or sources.

Details about this model may be obtained at <http://www.englink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Commodities Model

Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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Landfall Expected In About **38** Hours

**For Planning
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[illegible]

The amount of commodities forecasted is based on Mission Guide Book requirements and SME input and the above table indicates suggested daily needs based on full deployment of a commodities distribution system. Volume shown is for each commodity – water and ice. Commodity need may be supplied by multiple agencies and/or sources.

Details about this model may be obtained at <http://www engl ink.usa ce.army.mil>
or contact Louisville District staff at DLL-CELR-L-GIS@usa ce.army.mil

Hurricane Sandy Commodities Model

Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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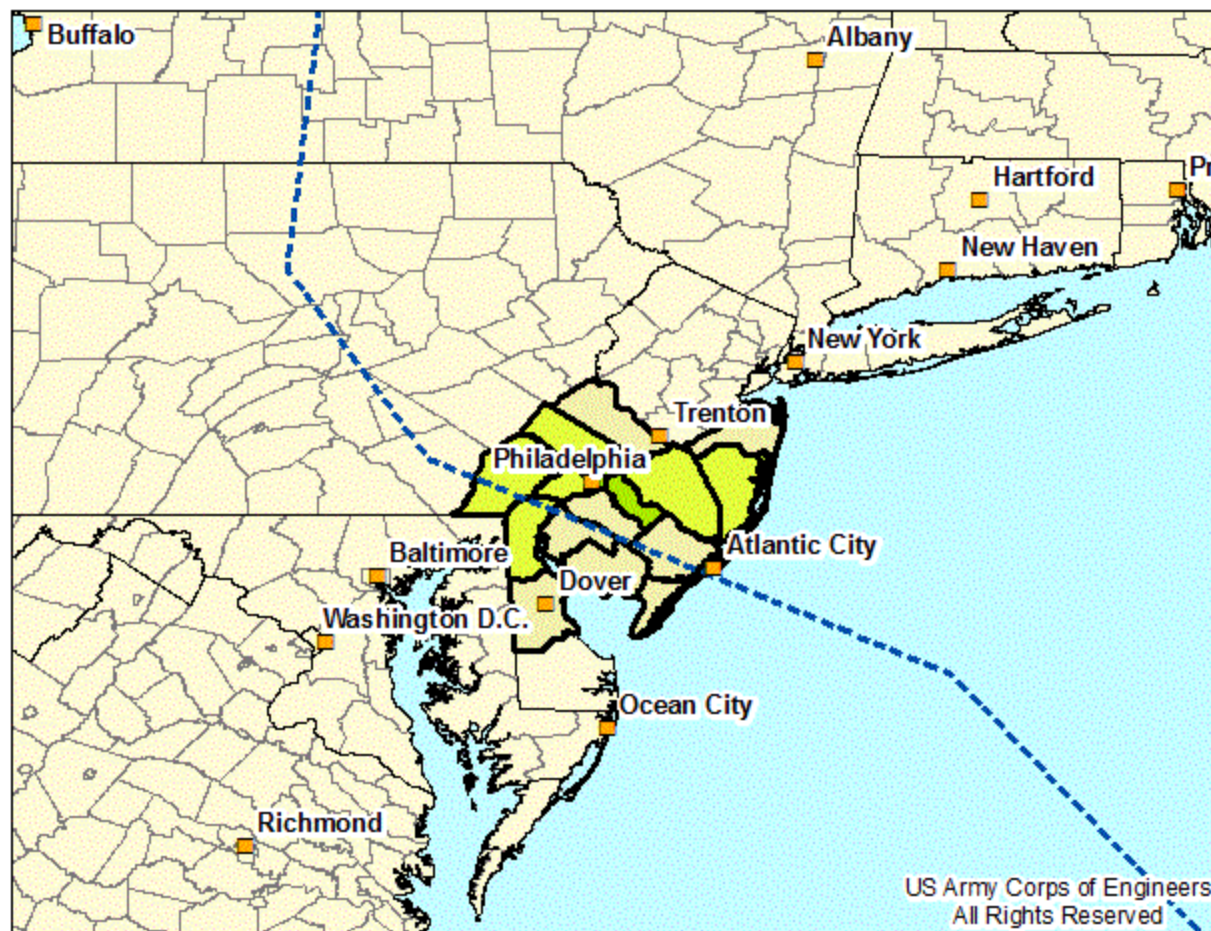


US Army Corps
of Engineers

Hurricane Sandy Temporary Roofing Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



0 200 400 Miles

US Army Corps of Engineers
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Post Landfall Temporary Roofing Model Results

New Jersey - 16,100
Pennsylvania - 13,500
Delaware - 3,700

*Model results per County on
following page*

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

Forecast Track

Temporary Roofing

- < 2,000 units
- 2,000 - 3,999 units
- 4,000 - 5,999 units
- 6,000 - 9,999 units
- > 10,000 units

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. Temporary roofing is based on 3% in CAT 1.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Roofing Model

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P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**

Temporary roofing is based on 3% in CAT 1.

Details about this model may be obtained at <http://www.english.usace.army.mil>
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Hurricane Sandy Roofing Model

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Sources:
HURREVAC
LRL-DEBRIS

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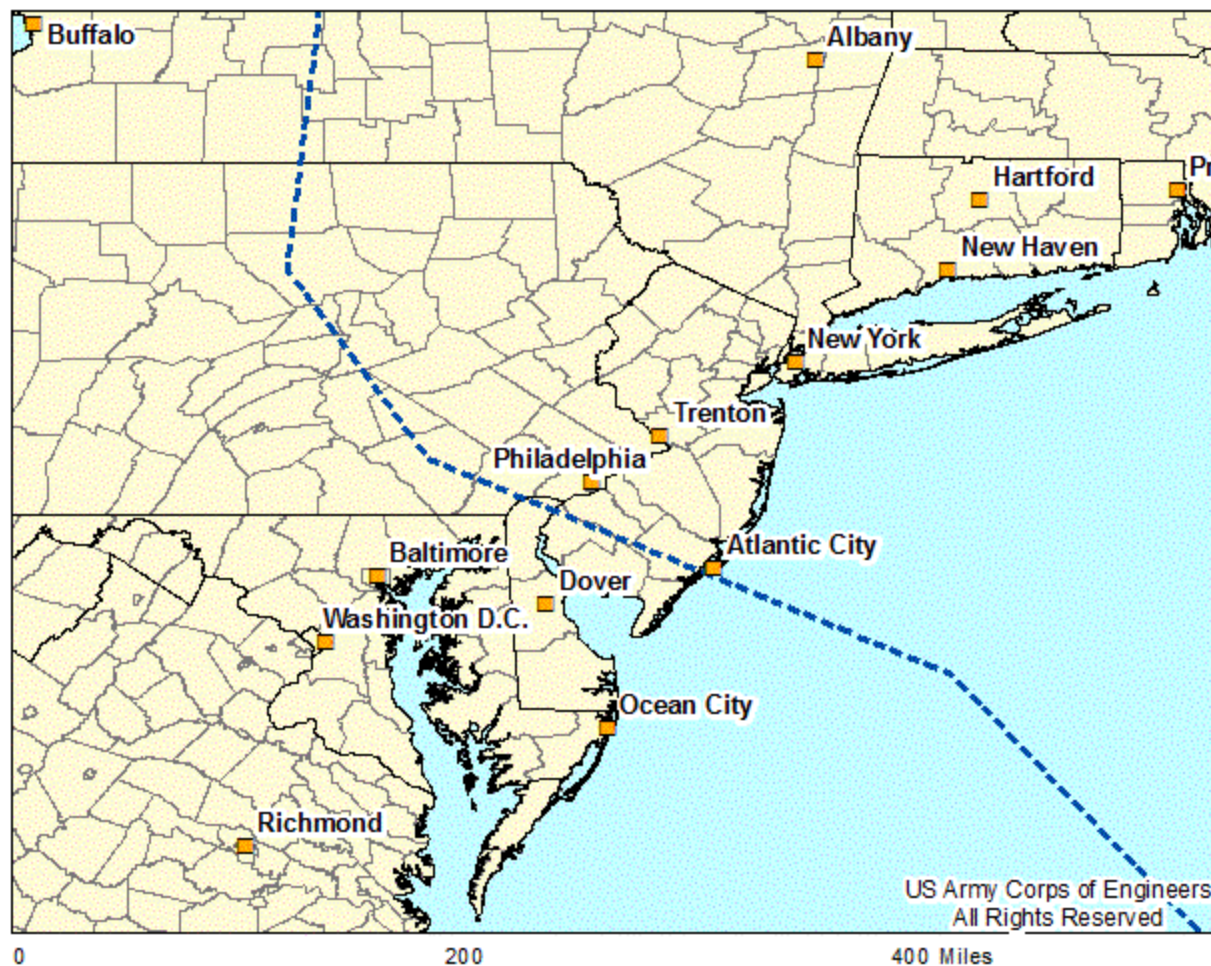


US Army Corps
of Engineers

Hurricane Sandy Temporary Housing Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Post Landfall Temporary Housing Model Results

No housing due to wind

*Model results per County on
following page*

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

Forecast Track

Temporary Housing

- < 2,000 units
- 2,000 - 3,999 units
- 4,000 - 5,999 units
- 6,000 - 9,999 units
- > 10,000 units

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Hurricane Sandy Housing Model

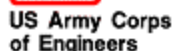
Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. Temporary housing is based on nothing. The number indicated represents a possible need but not necessarily the scope of mission for USACE.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil



Landfall Expected In About **38** Hours

For Planning Purposes Only!

The number indicated represents a possible need but not necessarily the scope of mission for USACE.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
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Hurricane Sandy Housing Model

P.Keown, LRL 1300 EDT 10/28/2012

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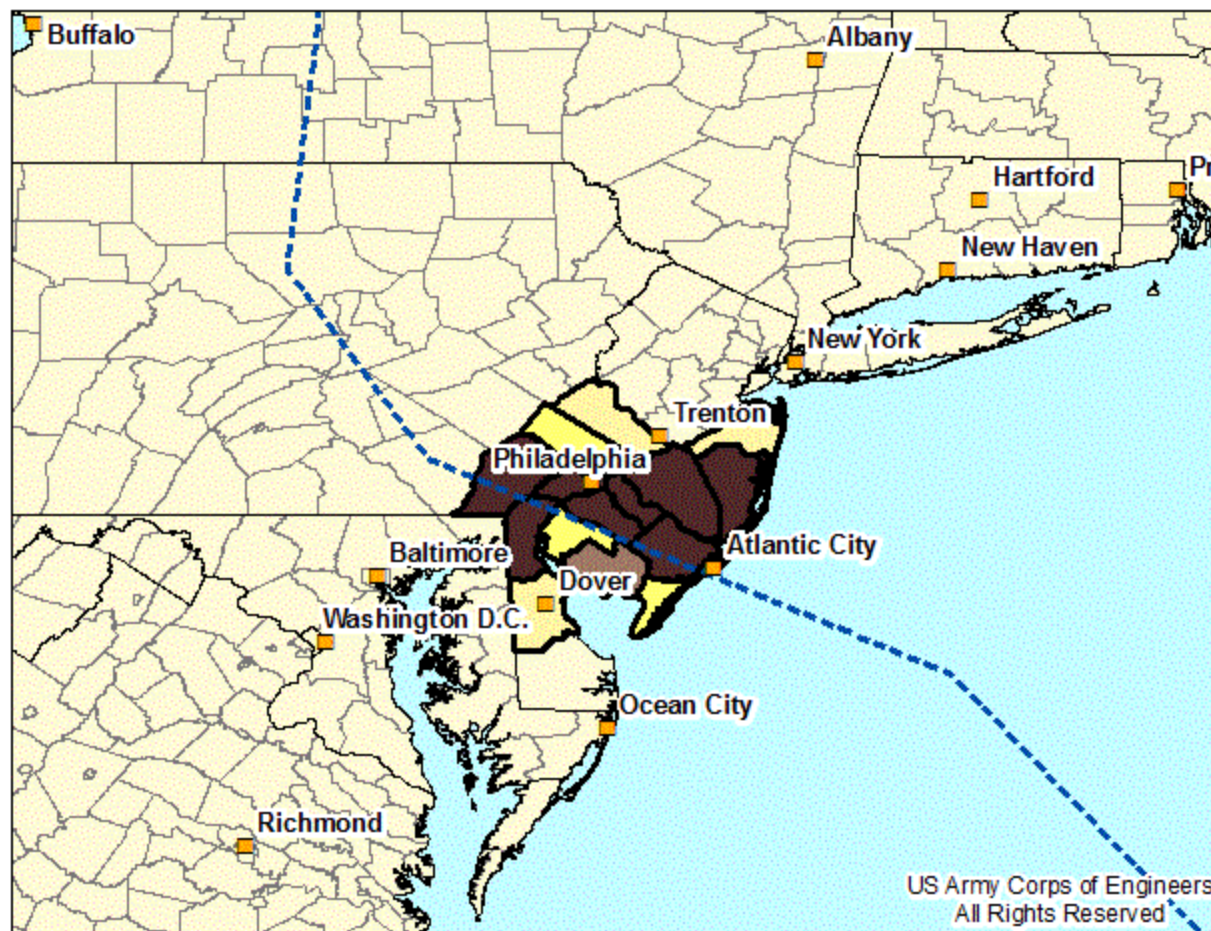


US Army Corps
of Engineers

Hurricane Sandy Population Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Post Landfall Population Model Results

New Jersey - 2,346,000
Pennsylvania - 2,106,000
Delaware - 424,000

*Model results per County on
following page*

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

Forecast Track

Population

- < 25,000 persons
- 25,000 - 99,999 persons
- 100,000 - 174,999 persons
- 175,000 - 249,999 persons
- > 250,000 persons

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0 200 400 Miles

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. The numbers of persons included in this model output are those that would be included within estimated hurricane force winds (Census 2010 values adjusted to July 2011 values).

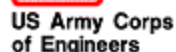
Details about this model may be obtained at <http://www.enlink.usace.army.mil>
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Hurricane Sandy Population Model

Generated By:
P.Keown, LRL 1300 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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**For Planning
Purposes Only!**

The number of persons estimated to be within the hurricane force winds comes from Census 2010 values adjusted to July 2011 values.

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Source: US Army Corps of Engineers. All Rights Reserved

Hurricane Sandy
Population Model

Generated By:

P.Keown, LRL 1300 EDT 10/28/2012

Sources:

HURREVAC
LRL-DEBRIS

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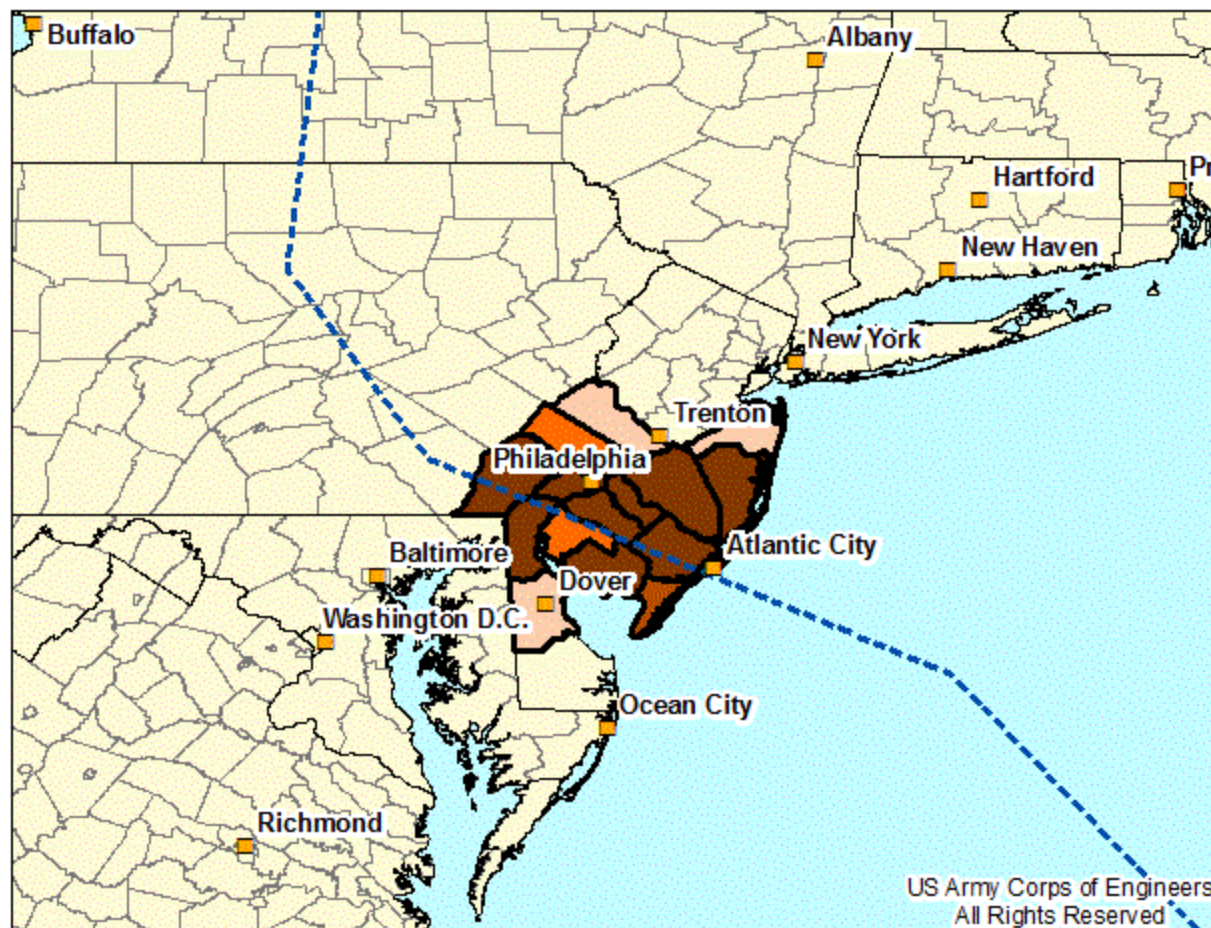


US Army Corps
of Engineers

Hurricane Sandy Households Model

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



0 200 400 Miles

US Army Corps of Engineers
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Post Landfall Households Model Results

New Jersey - 878,000
Pennsylvania - 802,000
Delaware - 166,000

*Model results per County on
following page*

This model is based on a
Category 1 storm making landfall
in coastal New Jersey.

Forecast Track

Households

- < 7,500 households
- 7,500 - 14,999 households
- 15,000 - 24,999 households
- 25,000 - 49,999 households
- > 50,000 households

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast. The numbers of households included in this model output are those that would be included within estimated hurricane force winds (Census 2010 values adjusted to July 2011 values).

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
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Hurricane Sandy Households Model

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Sources:
HURREVAC
LRL-DEBRIS

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**For Planning
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The number of households estimated to be within the hurricane force winds comes from Census 2010 values adjusted to July 2011 values.

Details about this model may be obtained at <http://www.englink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

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LRL-DEBRIS

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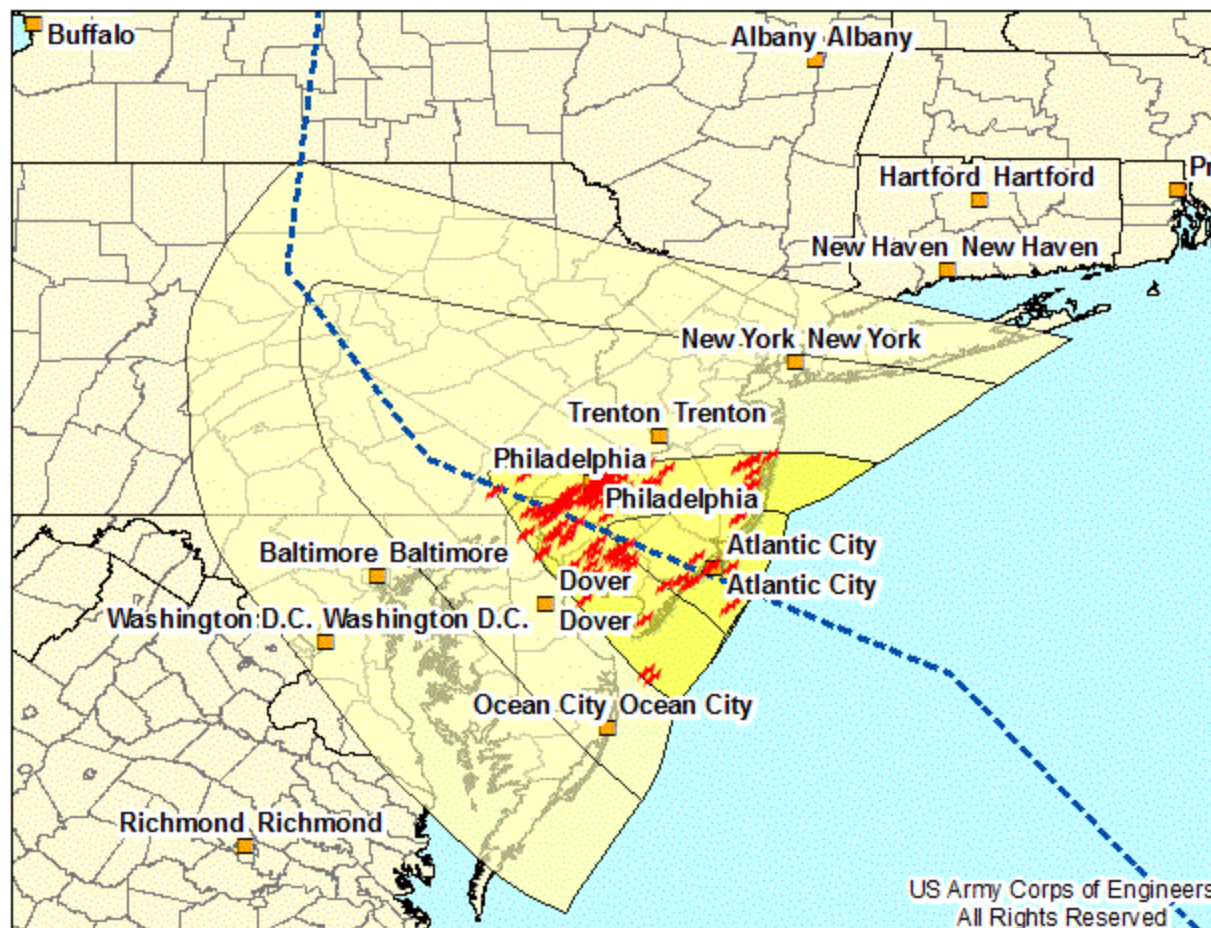


US Army Corps
of Engineers

Hurricane Sandy Electric Power Plants

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



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Electric Power Plants
 Forecast Track

Most Probable Landfall [Power Plants] Inside Hurricane Force Winds

This model is based on a
Category [1] storm making landfall
[in coastal New Jersey].

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Law Enforcement

Generated By:
P.Keown, LRL 1230 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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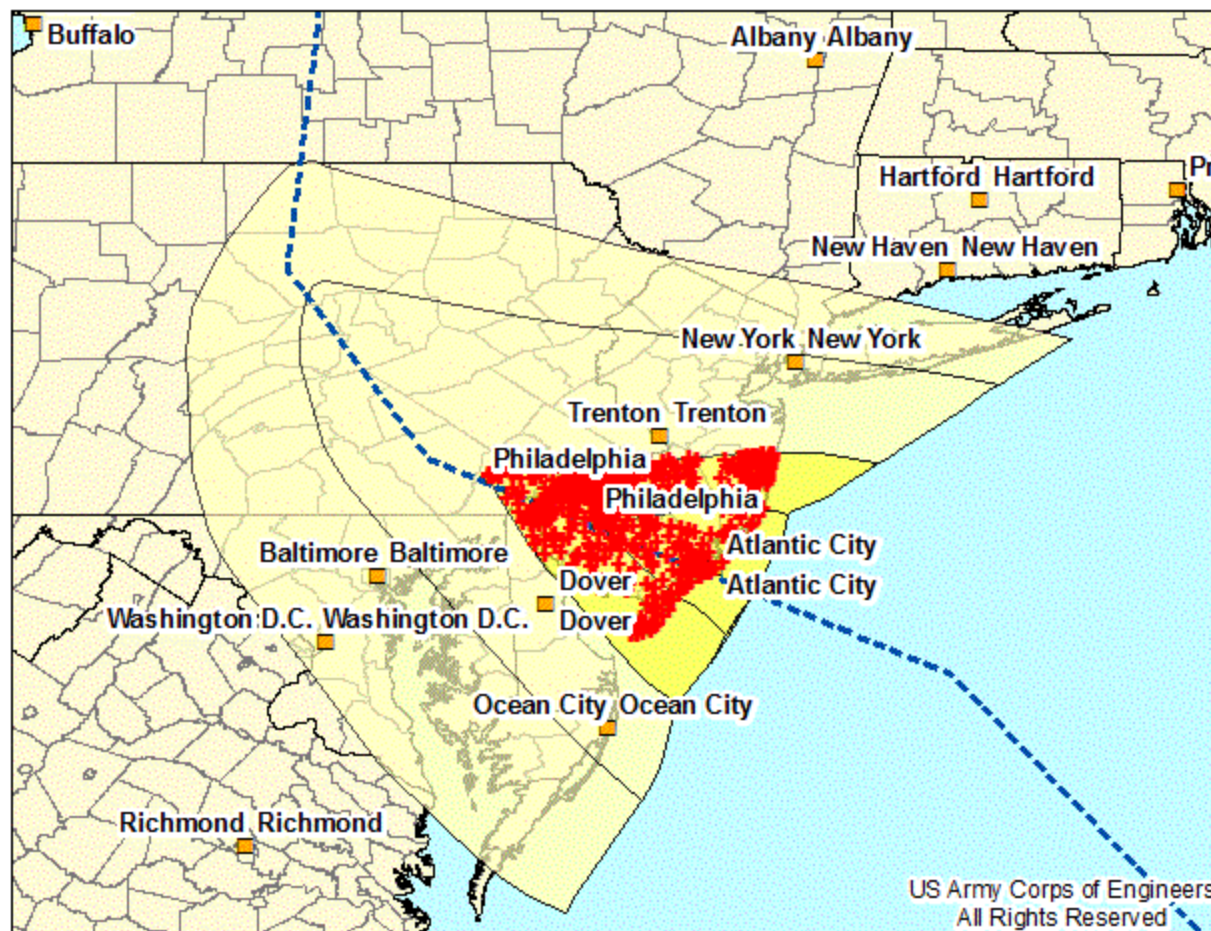


US Army Corps
of Engineers

Hurricane Sandy Fire Stations

Landfall Expected In About 38 Hours

**For Planning
Purposes Only!**



***Most Probable Landfall [Fire
Stations] Inside Hurricane
Force Winds***

This model is based on a
Category [1] storm making landfall
[coastal New Jersey].

0 200 400 Miles

+ Fire Stations
Forecast Track

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Law Enforcement

Generated By:
P.Keown, LRL 1230 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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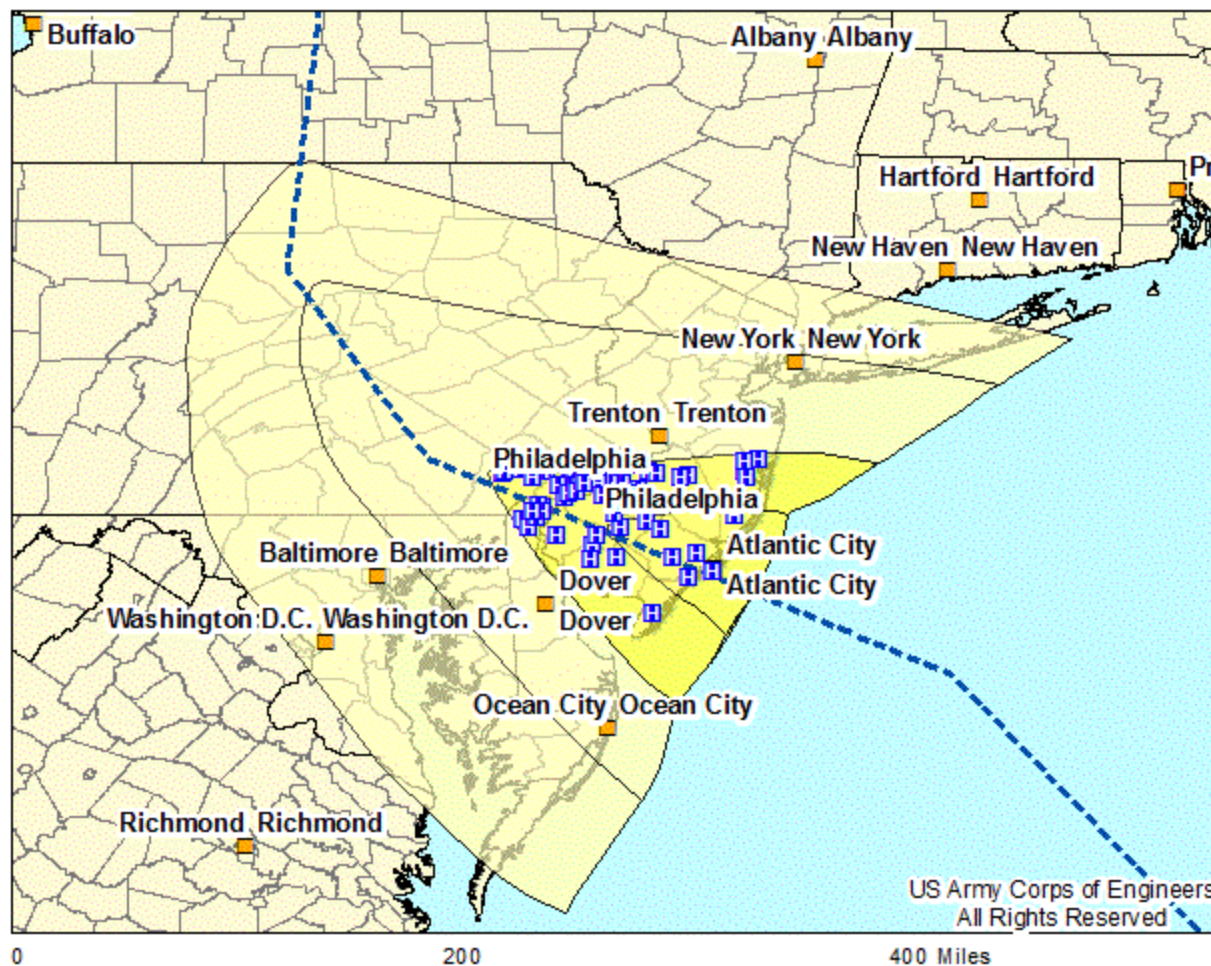


US Army Corps
of Engineers

Hurricane Sandy Hospitals

Landfall Expected In About 38 Hours

**For Planning
Purposes Only!**



***Most Probable Landfall
[Hospitals] Inside Hurricane
Force Winds***

This model is based on a
Category [1] storm making landfall
[in coastal New Jersey].

Hospitals
 Forecast Track

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

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Hurricane Sandy Law Enforcement

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Sources:
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LRL-DEBRIS

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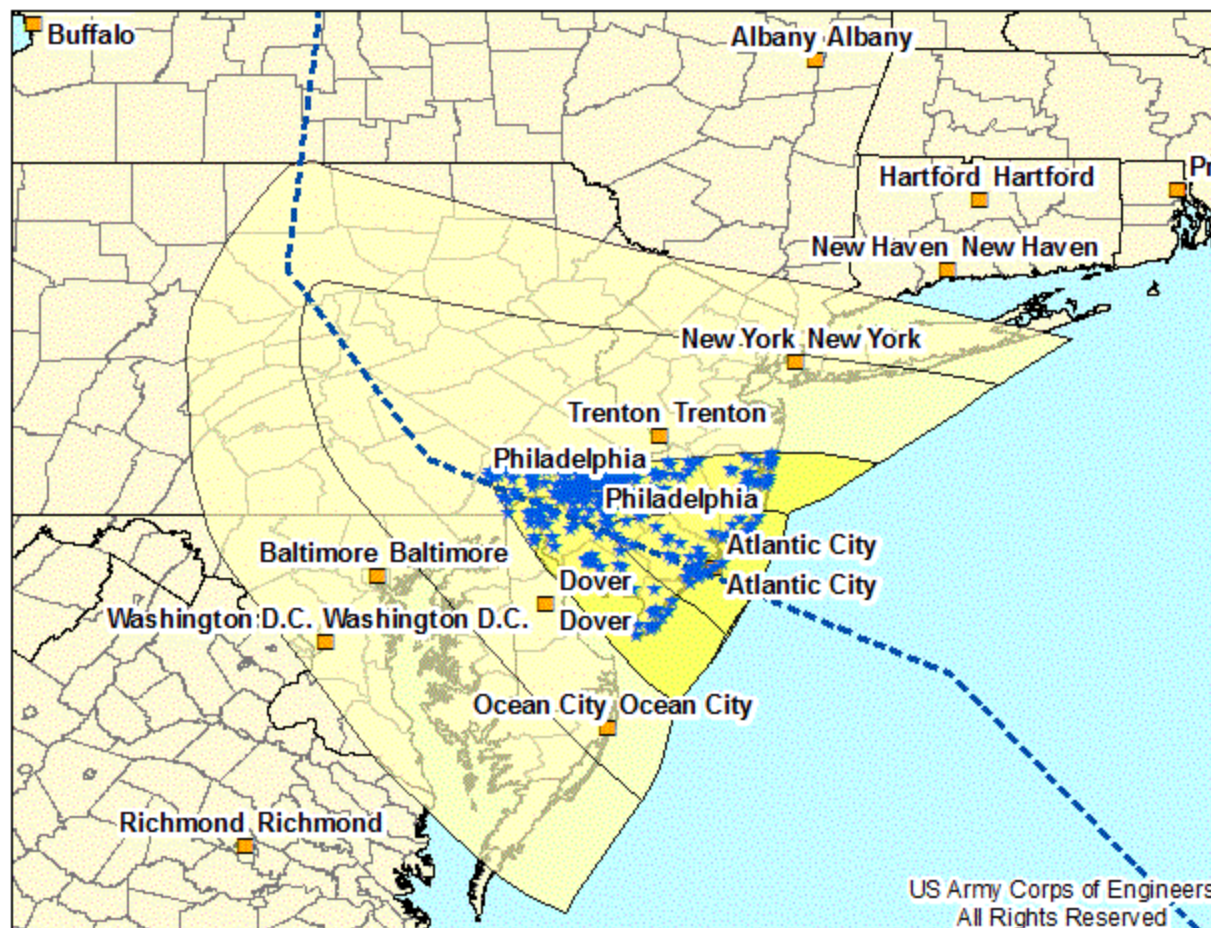


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Hurricane Sandy Law Enforcement

Landfall Expected In About **38** Hours

**For Planning
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Most Probable Landfall [Law Enforcement] Inside Hurricane Force Winds

This model is based on a
Category [1] storm making landfall
[in coastal New Jersey].

- ★ Law Enforcement
- Forecast Track

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

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or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Law Enforcement

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Sources:
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LRL-DEBRIS

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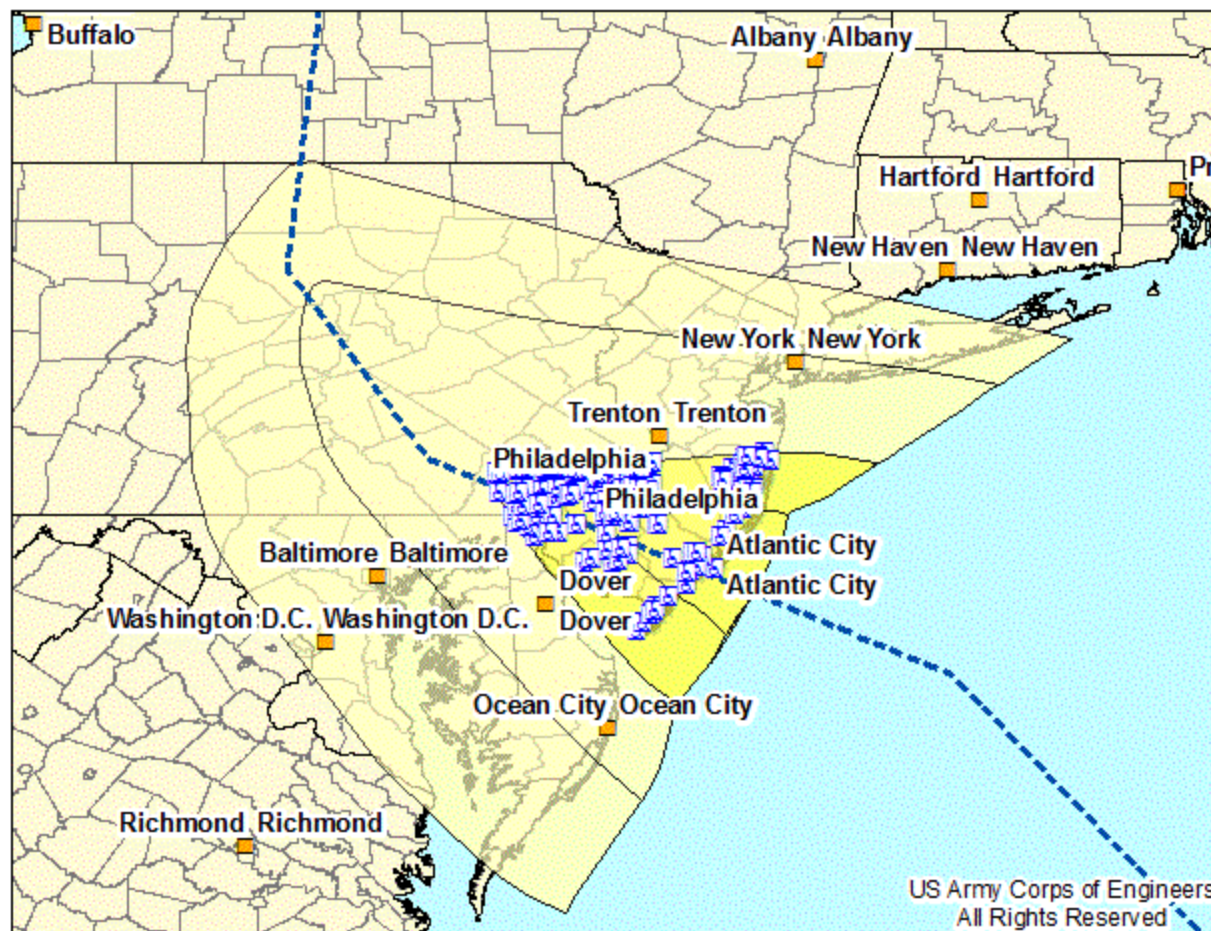


US Army Corps
of Engineers

Hurricane Sandy Nursing Homes

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



0 200 400 Miles

***Most Probable Landfall
[Nursing Homes] Inside
Hurricane Force Winds***

This model is based on a
Category [1] storm making landfall
[coastal New Jersey].

- Nursing Homes
- Forecast Track
- Law Enforcement
- Forecast Track

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Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Law Enforcement

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P.Keown, LRL 1230 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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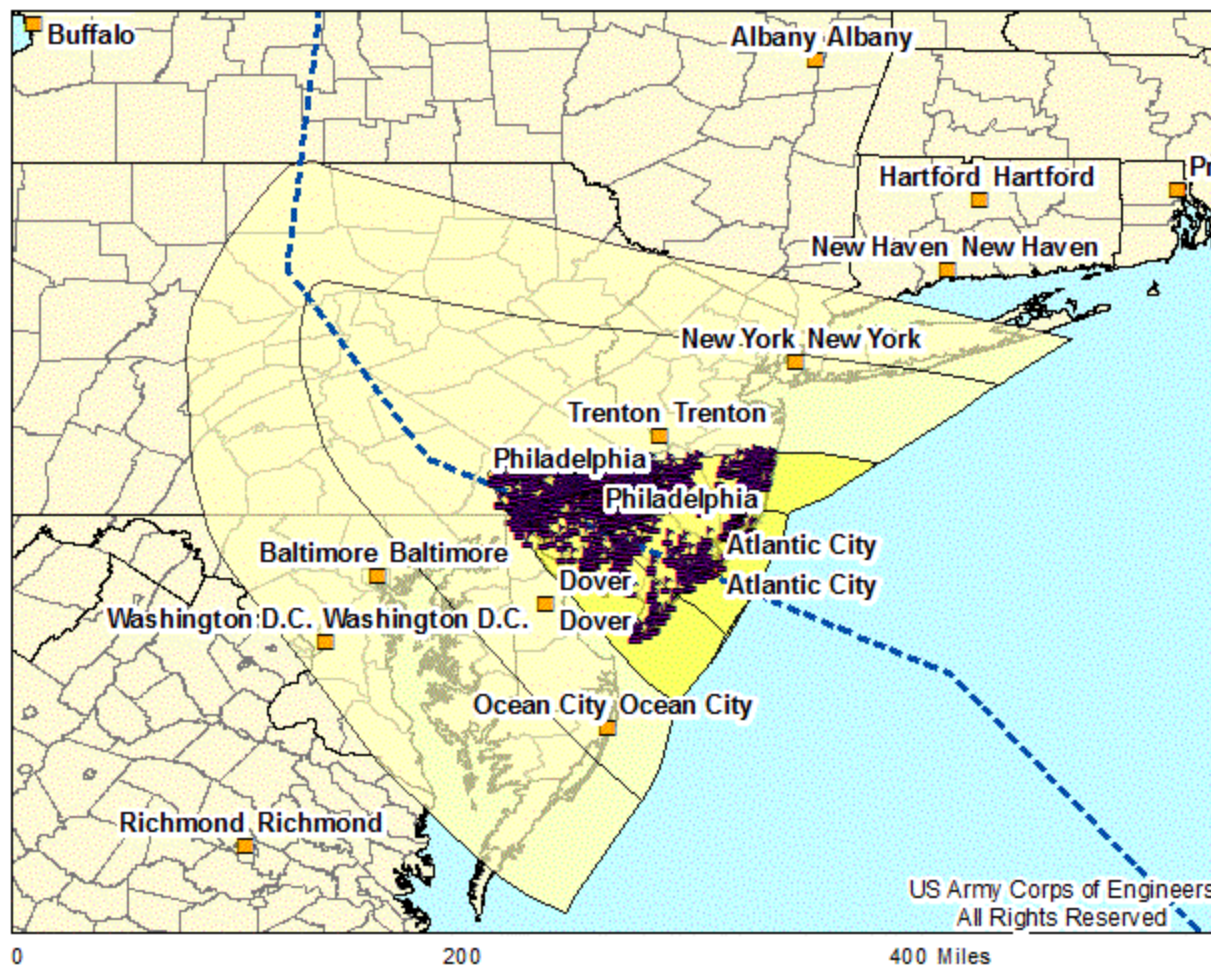


US Army Corps
of Engineers

Hurricane Sandy Schools

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Most Probable Landfall [Schools] Inside Hurricane Force Winds

This model is based on a
Category [1] storm making landfall
[coastal New Jersey].

Schools
 Forecast Track

Information provided on this page displays a Category 1 storm making landfall in coastal New Jersey. These projections are based on information from the NHC (1100 EDT 10/28/2012) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2012).

Details about this model may be obtained at <http://www.enlink.usace.army.mil>
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Sandy Law Enforcement

Generated By:
P.Keown, LRL 1230 EDT 10/28/2012

Sources:
HURREVAC
LRL-DEBRIS

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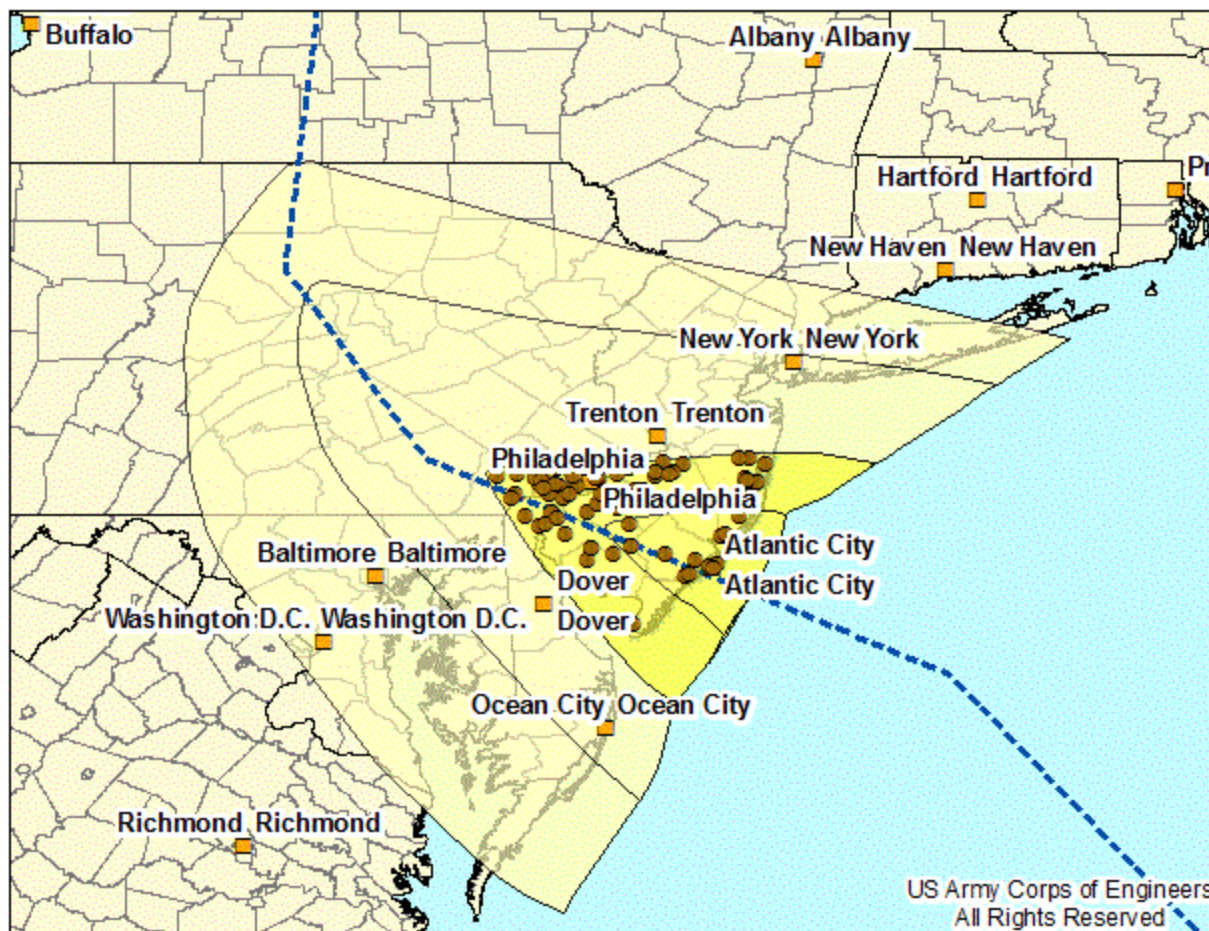


US Army Corps
of Engineers

Hurricane Sandy Sewage Treatment Plants

Landfall Expected In About **38** Hours

**For Planning
Purposes Only!**



Most Probable Landfall [Sewage Treatment Plants] Inside Hurricane Force Winds

This model is based on a
Category [1] storm making landfall
[coastal New Jersey].

● Sewage Treatment Plants
--- Forecast Track

US Army Corps of Engineers
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